

ABSTRACT OF THE DISCLOSURE

A capacitor is fabricated over a first layer having a first conductive plug formed on a substrate in a semiconductor memory. On the first layer, a silicon nitride film, a first capacitor oxide film, and a second oxide film are sequentially formed. The first and the second oxide films have different wet etch rates. Dry and wet etchings are sequentially performed to the first and second oxide films to form a second contact hole. The second contact hole is then etched. Thereafter, a silicon film and a filler film are sequentially formed on the resultant surface of the structure. A cylindrical storage node electrode is then formed by etching a predetermined portion of the filler film and the silicon film. After removing the remaining filler film and the oxide films, a Ta₂O₅ dielectric film covering the storage node electrode and a TiN film for an upper electrode are then sequentially formed.